

REFERENCES

- Abbot, R.N., 1978. Peritectic reactions in the system An-Ab-Or-Qz-H₂O. Can. Min., 16, 245-256.
- Bailey, J.C. 1977. Fluorine in granitic rocks and melts: A review. Chem. Geol., 19, 1-42.
- Barker, D.S., 1971. Quartz- feldspar intergrowths: granophyre, Clubleyite, myrmekite, and graphic granite. Unpublished ms. In: Feldspar Minerals, J.V. Smith, Vol 2, Springer, Berlin. 690pp.
- Barker, D.S., 1970. Compositions of granophyre, myrmekite and graphic granite. Bull. geol. Soc. Am., 81, 3339-3350.
- Barsukov, V.L., 1957. The geochemistry of tin. Geochem. Int., 41-51.
- Bayer, G., 1974. Crystal chemistry of thorium -section 90A. In: Handbook of Geochemistry. Wedepohl, K.H. (Ed.). Springer. Vol 11/4, In: Handbook of Geochemistry.
- Biste, M., 1979. Die Anwendung geochemischer Indikatoren auf die Zinn-Hoeffigkeit herzynischer Granite in Sued-Sardinien. Berl. Geowiss. Abh., 18, 1-109.
- Borisenok, L.A. and Saukov, A.A., 1960. Geochemical cycle of gallium. Intern. Geol. Congr., 21st, Rept. Session, Norden Part 1, 96.
- Bowen, N.L., 1945. Phase equilibria bearing on the origin and differentiation of alkaline trends. Am. J. Sci., 243-A, 75-89.
- Burton, J.D., 1972. In: Handbook of Geochemistry (31-D-1). Wedepohl, K.H. (Ed.), Springer.
- Button, A., 1973. A regional study of the stratigraphy and development of the Transvaal basin in the eastern and southeastern Transvaal. Ph.D. thesis (unpubl.), Univ. of the Witwatersrand, 510pp.

- Chappel, B.W. and White, A.J.R., 1974. Two contrasting granite types. Pacific Geology, 8, 173-174.
- Chorlton, L.B. and Martin, R.F., 1978. The effect of boron on the granite solidus. Can. Min., 16, 239-244.
- Clementson, I.M., 1979. Orientation rock and soil sampling survey over the molybdenite occurrence on Varschwater 23JS. Rand Mines Report.
- Clubley-Armstrong, A.R., 1977. The geology of the Selonsriver area, north of Middelburg, Transvaal, with special reference to the structure of the regions southeast of the Dennilton Dome. M.Sc. thesis (unpubl.) Univ. of Pretoria, 106pp.
- Clubley-Armstrong, A.R. and Sharpe, M.R., 1979. The structural evolution of the Dennilton Dome and its relationship to the intrusion of the Bushveld Complex. Trans. geol. Soc. S. Afr., 82, 23-37.
- Cocco, G., Fanfani, L. and Zanazzi, P.F., 1972. Rubidium section, Vol 11/4, In: Handbook of Geochemistry, Wedepohl, K.H. (Editor), Springer.
- Coetzee, J., 1984. A geochemical and petrological investigation of the low-grade tin deposits in the Bobbejaankop Granite at the Zaaiplaats tin mine. M.Sc. thesis (unpubl.), Univ. of Pretoria.
- Collins, W.J., Beams, S.D., White, A.J.R. and Chappell, B.W., 1982. Nature and origin of A-type granites with particular reference to southeastern Australia. Contrib. Mineral. Petrol., 80, 189-200.
- Crocker, I.T., Walraven, F. and Hammerbeck, E.C.I., 1977. Report on molybdenite mineralization on Varschwater 23JS, Nebo district. Geol. Surv. S. Afr., Report 32 (open file).
- Dana, E.S., 1932. A textbook of mineralogy. Fourth Edition, revised and enlarged by W.E. Ford. John Wiley

and Sons. New York. 851pp.

Day, H.W. and Fenn, P.M., 1982. Estimating the P-T-XH₂O conditions during crystallization of low calcium granites. J. Geol., 90, 485-507.

Deer, W.A., Howie, R.A. and Zussman, J., 1962a. Rock forming minerals, volume 1 (ortho- and ring silicates). Longmans, Green, London, 333pp.

Degenhardt, H., 1957. Untersuchungen zur geochemischen Verteilung des Zirkoniums in der Lithosphäre. Geochim. Cosmochim. Acta. VII, 279.

Desborough, G.A., Ludington, S.D. and Sharp, W.N., 1980. Groves, D. Redskin Granite: a rare-metal-rich Precambrian pluton, Colorado, USA. Min. Mag., 43, 959-965.

Dietrich, R.V., 1962. Advanced study of feldspar. In Norsk Høyskole, Geologisk Tidsskrift Bind 42. Christie, OHJ (Red.), Oslo, Kopenhagen.

Durasova, N.A. and Barsukov, V.L., 1973. The behaviour of tin in liquating boron-bearing silicate melts. Geochem. Int., 10, 920-922.

EI Bouseily, A.M. and EI Sokkary A.A., 1975. The relation between Rb, Ba and Sr in granitic rocks. Chem. Geol., 16, 207-219.

Eugster, H.P. and Wones, D.R., 1962. Stability relations of the ferruginous biotite, annite. J. Petrol., 3, 82-125.

Flinter, B.H., 1971. Tin in acid granitoids: the search for a geochemical scheme for mineral exploration. In: Geochemical Exploration, Can. Inst. Min., Spec. Vol. 11, 323-330.

Flinter, B.H., Hesp, W.R. and Rigby, D., 1972. Selected geochemical, mineralogical and petrological features of granitoids of the New England Complex, Australia, and their relation to Sn, W, Mo and Cu mineralization.

- Econ. Geol., 67, 1241-1262.
- Fourie, P.J., 1969. Die geochemie van granitiese gesteentes van die Bosveldstollingskompleks. D.Sc. thesis (unpubl.), Univ. of Pretoria, 289pp.
- Gain, S.B., 1979. Report on a geological and geochemical survey on the farms Varschwater 23JS, Tafelkop 120JS, Tussenin 21JS, Mooiplaats 121JS and Boekenhoutkloof 124JS. Mining Corporation Report.
- Glyuk, D.S., Bazarova, S.B. and Trufanova, L.G., 1977. Ezhegodnik Sibirsk Inst Geochim. (yearbook Siberian Inst. Geochem. for 1976), 170-175.
- Groves, D.I. and McCarthy, T.S., 1978. Fractional crystallization and the origin of tin in granitoids. Mineral. Dep., 13, 11-26.
- Haapala, I., 1977. Petrography and geochemistry of the Eurajoki stock, a rapakivi-granite complex with greisen-type mineralization in south-western Finland. Finland. Geol. Survey. Bull., 286, 128pp.
- Hahn-Weinheimer, P. and Ackermann, H., 1967. Geochemical investigation of differentiated granite plutons of the southern Black Forest II. The zoning of the Marlsburg Granite pluton as indicated by the elements titanium, zirconium, phosphorus, strontium, barium, rubidium, potassium and sodium. Geochim. Cosmochim. Acta., 31, 2197-2218.
- Hall, A., 1967. The distribution of some major and trace elements in feldspars from the Rones and Ardرا granite complexes, Donegal, Ireland. Geochim. Cosmochim. Acta., 31, 835-847.
- Hall, A.L., 1913. The geology of the country southwest of Lydenburg. Geol. Surv. S. Afr., explanation of sheet no.11.
- Hara, I., et al., 1980. Distribution patterns of quartz in

- granites evidence of their high-temperature deformation during cooling. N. Jb. Min. Hh., 20-30.
- Hattingh, P.J., 1977. Die struktuur van die Bosveldkompleks in die Groblersdal-Lydenburg-Belfast gebied soos afgelei uit 'n regionale gravitasie-opname. Inst. geol. Res. Bushveld Complex, Res. Rept. 8.
- Hawley, C.C. and Wobus, R.A., 1977. General geology and petrology of the precambrian crystalline rocks, Park and Jefferson Counties, Colorado. U.S. Geol. Surv. Prof. Paper. 608-B, 73pp.
- Heier, K.S. and Brooks, C., 1966. Geochemistry and genesis of the Heemskirk granite, West Tasmania. Geochim. Cosmochim. Acta. 30, 633-643.
- Heier, K.S. and Rogers, J.J.W., 1963. Radiometric determination of thorium, uranium and potassium in basalts and in two magmatic differentiation series. Geochim. Cosmochim. Acta. 27, 137-154.
- Hesp, W.R., 1971. Correlations between the tin content of granitic rocks and their chemical and mineralogical composition. In: Geochemical Exploration. Can. Inst. Min. Spec. Vol. 11, 341-353.
- Hesp, W.R. and Rigby, D., 1972. The transport of tin in acid igneous rocks. Pacific Geology, 4, 135-152.
- Hesp, W.R. and Rigby, D., 1974. Some geochemical aspects of tin mineralization in the Tasman Geosincline. Mineral. Deposita, 9, 49-60.
- Hesp, W.R. and Rigby, D., 1975. Aspects of tin metallogenesis in the Tasman Geosincline, Eastern Australia, as reflected by cluster and factor analyses. Jnl. Geochem. Expl., 4, 331-347.
- Hine, R., Williams, I.S., Chappel, B.W. and White, A.J.R., 1978. Contrasts between I- and S-type granitoids of the Kosciusko Batholith. J. Geol. Soc. Aust.

25, 219-234.

Hosking, K.F.G., 1968. The relation between primary deposits and granitic rocks. In: A technical conference on tin, Fox, W. (editor), International tin council, Haymarket, London 1967, 267-311.

Hunter, D.R., 1973. The localization of tin mineralization with reference to South Africa. Minerals. Sci. Engng. 5, 53-77.

Hyndman, D.W., 1981. Controls on source and depth of emplacement of granitic magma. Geology, 9, 244-249.

Ianova, G.F., 1963. Content of tin, tungsten and molybdenum in granites enclosing tin-tungsten deposits.

Kuroda, Geochemistry, 5, 492-500.

Ianova, G.F., 1969. Conditions of formation of tungsten and molybdenum minerals in hydrothermal processes. Geokhimiya, 1969, 411-415.

Ishihara, S., 1981. The granitoid series and mineralization. Econ. Geol., 75th Ann. Vol., 458-484.

James, R.S. and Hamilton, D.L., 1969. Phase relations in the system NaAlSi₃O₈-KAlSi₃O₈-CaAl₂Si₂O₈-SiO₂ at 1 kilobar water vapor pressure. Contr. Mineral. Petrol., 21, 111-141.

Jahns, R.H. and Burnham, C.W., 1969. Experimental studies of pegmatite genesis: I. A model for the derivation and crystallization of granitic pegmatites. Econ. Geol., 64, 843-864.

Jahns, R.H. and Tuttle, O.F., 1963. Origin of igneous aplites. Abstracts for 1962: Geol. Soc. Am. Spec. Paper, 73, 177-178.

Janardan Rao, Y., Murthy, I.S.N. and Sree Ramulu, C., 1973. Sphene coronites from Hyderabad Granites, Andhra Pradesh, India. Contr. Mineral. Petrol., 41, 57-60.

Juniper, D.N. and Kleeman, J.D., 1979. Geochemical charac-

- terization of some tin-mineralizing granites of New South Wales. J. Geochem. Explor. 11, 321-333.
- Köhler, A. and Raaz, F., 1951. Ueber eine neue Berechnung und graphische Darstellung von Gesteinsanalysen. N. Jb. Min. Mh., 247-263.
- Kolbe, P., 1966. Geochemical investigation of the Cape Granite, South-Western Cape Province, South Africa. Trans. geol. Soc. S. Afr. 69, 161.
- Kolbe, P. and Taylor, S.R., 1966. Major and trace element relationships in granodiorites and granites from Australia and South Africa. Contrib. Mineral. Petrol. 12, 202-222.
- Kuroda, P.K. and Sandell, E.B., 1954. Geochemistry of molybdenum. Geochim. Cosmochim. Acta 6, 35-63.
- Lameyre, J. and Bowden, P., 1982. Plutonic rock types series: discrimination of various granitoid series and related rocks. J. Volcanol. Geotherm. Res. 14, 169-186.
- Larsen, E.S. and Gottfried, D., 1961. Distribution of uranium in rocks and minerals of Mesozoic batholiths in Western United States. U.S. geol. Surv. Bull. 1070-C, 63-102.
- Leake, B.E., 1978. Nomenclature of amphiboles. Am. Mineral. 63, 1023-1052.
- Lenthall, D.H., 1975. Aspects of the geochemistry of the acid phase of the central and eastern Bushveld Complex. Econ. Geol. Res. Unit., Univ. Witwatersrand, Johannesburg. Info. Circ. 99, 20pp.
- Lenthall, D.H. and Hunter, D.R., 1977. The geochemistry of the Bushveld Granites in the Potgietersrus tin-field. Prec. Res. 5, 359-400.
- Loiselle, M.C. and Wones, D.R., (in prep). Characteristics and models for the origin of A-type granites.

- Lombaard, B.V., 1932. The felsites and their relations in the Bushveld Complex. Trans. geol. Soc. S. Afr. 35, 125-190.
- Lombaard, B.V., 1934. On the differentiation and relationships of the rocks of the Bushveld Complex. Trans. geol. Soc. S. Afr. 37.
- Lombaard, A.F., 1949. Die geologie van die Bosveldkompleks Nellydalen langs Bloedrivier. Trans. geol. Soc. S. Afr. 52, 343-376.
- Lombaard, B.V., 1932. The felsites and their relations in the Bushveld Complex. Trans. geol. Soc. S. Afr. 35, 125-190. Pretoria, 332pp.
- Luth, W.C., Jahns, R.H. and Tuttle, O.F., 1964. The granite system at pressures of 4 to 10 kilobars. J. Geophysical Research, 69, 759-773.
- MacCaskie, D.R., 1983. Differentiation of the Nebo Granite (Main Bushveld Granite), South Africa. Ph.D. thesis (unpubl.) Univ. of Oregon, 146pp.
- Maaloe, S. and Wyllie, P.J., 1975. Water content of a granite magma deduced from the sequence of crystallization determined experimentally with water-undersaturated conditions. Contrib. Mineral. Petrol. 52, 175-191.
- Manning, D.A.C., 1981. The effect of fluorine on the liquidus phase relationships in the system Qz-Ab-Or with excess water at 1 kb. Contrib. Mineral. Petrol. 76, 206-215.
- Martin, R.F. and Bonin, B., 1976. Water and magma genesis: the association hypersolvus granite- subsolvus granite. Can. Mineral. 14, 228-237.
- McCarthy, T.S. and Hasty, R.S., 1976. Trace element distribution patterns and their relationship to the crystallization of granitic melts. Geochim. Cosmochim. Acta, 40, 1351-1358.

- Mishchenko, V.S., Kuts, V.P. and Orlova, L.A., 1966. The geochemistry of gallium in high-temperature post-magmatic processes. Geochem. Int., 3, 330-.
- Mogarovskiy, V.V. and Mel'nichenko, A.K., 1968. Distribution of niobium and tantalum in the granitoids of the Gissar Pluton, Central Tadzhikistan. Geochem. Intern., 5, 893-.
- Nell, J., 1984. Geochemical and thermodynamic controls in the formation of mineral assemblages from the metamorphic aureole of the Bushveld Complex in the Potgietersrus area. M.Sc. thesis (unpubl.), Univ. of Pretoria, 332pp.
- Nemec, D., 1975. Genesis of tourmaline spots in leucocratic granites. N. Jb. Miner. Mh., H7, 308-317.
- Nockolds, S.R. and Allen, R., 1953. The geochemistry of some igneous rock series. Geochim. Cosmochim. Acta, 4, 105-142.
- Norrish, K. and Hutton, J.J., 1969. An accurate X-ray spectrographic method for analyses of a wide range of geological samples. Geochim. Cosmochim. Acta, 33, 431-453.
- Oelsner, O.W., 1952. Die pegmatitisch-pneumatolytischen Lagerstätten des Erzgebirges. Freiberger Forsch.-H., 4.
- Olade, M.A., 1980. Geochemical characteristics of tin-bearing and tin-barren granites, Northern Nigeria. Econ. Geol., 75, 71-82.
- Pagel, M., 1982. The mineralogy and geochemistry of uranium, thorium, and rare-earth elements in two radio-active granites of the Vosges, France. Min. Mag., 46, 149-161.
- Parry, W.T. and Downey, L.M., 1982. Geochemistry of hydrothermal chlorite replacing igneous biotite. Clays and Clay Minerals, 30, 81-90.

- Pitcher, W.S., 1979. The nature, ascent and emplacement of granitic magmas. J. geol. Soc. London, 136, 627-662.
- Pupin, J.P., 1980. Zircon and granite petrology. Contr. Mineral. Petrology, 73, 207-220.
- Recknagel, R., 1909. On the origin of the South African tin deposits. Trans. geol. Soc. S. Afr., 12, 168-203.
- Rogers, J.J.W. and Ragland, P.C., 1961. Variation of thorium and uranium in selected granitic rocks. Geochim. Cosmochim. Acta, 25, 99-109.
- Rogers, J.J.W., Ragland, P.C., Nishimori, R.K., Greenberg, J.K. and Hauck, S.A., 1978. Varieties of granitic uranium deposits and favourable exploration areas in the eastern United States. Econ. Geol., 73, 1539-1555.
- Rye, D.M. and Roy, R.F., 1978. The distribution of thorium, uranium and potassium in archean granites from northeastern Minnesota. Am. J. Sci., 278, 354-378.
- Sattran, V. and Klominsky, J., 1970. Petrometallogenic series of igneous rocks and the endogenous ore deposits in the Czechoslovak part of the Bohemian Massif. Sbornik. Geologickyh. Ved., 12, 65-154.
- Schloemer, H., 1962. Hydrothermal-syntetische gemeinsame Kristallization von Orthoklas und Quarz, II. Radex Rundschau, 4, 157-173.
- Schust, F., Striegler, R. and Oemler, M., 1970. Bemerkungen zur räumlichen Verteilung von Turmalin-Quarz-Knollen im Eiberstocker Granitmassiv. Zeitschr. Angew. Geol., 16, 113-122.
- Sharpe, M.R., Brits, R. and Engelbrecht, J.P., 1983. Rare Earth and trace element evidence pertaining to the petrogenesis of 2.3 GA old continental andesites and other volcanic rocks from the Transvaal Sequence,

- South Africa. Inst. geol. Res. Bushveld Complex.
Res. Rept. 40.
- Smith, J.V., 1974. Feldspar Minerals. II-Chemical and textural properties. Springer. Berlin. 690pp.
- Smith, J.V. and MacKenzie, W.S., 1955. The alkali feldspars. II. A simple X-ray technique for the study of alkali feldspars. Amer. Mineral. 40, 733-747.
- Smith, T.E. and Turek, A., 1976. Tin-bearing potential of some Devonian granitic rocks in S.W. Nova Scotia. Mineral. Deposita. 11, 234-245.
- Spry, A., 1979. Metamorphic textures. Pergamon Press. Oxford. 350pp.
- Steiner, J.C., Jahns, R.H. and Luth, W.C., 1975. Crystallization of alkali feldspar and quartz in the haplogranite system $\text{NaAlSi}_3\text{O}_8-\text{KAlSi}_3\text{O}_8-\text{SiO}_2-\text{H}_2\text{O}$ at 4 kb. Geol. Soc. Am. Bull. 86, 83-98.
- Stemprok, M., 1970. Geochemical association of tin. In: Technical Conference on Tin. 2nd. Bangkok 1969, Fox, W.(Editor), Internat. Tin Council, 1, 118-124.
- Stone, M., 1982. The behaviour of tin and some other trace elements during granite differentiation, West Cornwall, England. 339-355. In: Metallization associated with acid magmatism (MAWAM), Evans, A.M.(Editor), Wiley.
- Strauss, C.A., 1954. The geology and mineral deposits of the Potgietersrust tin-fields. Geol. Surv. S. Afr. Mem. 46, 241pp.
- Strauss, C.A. and Truter, F.C., 1944. The Bushveld granites in the Zaaiplaats tin mining area. Trans. geol. Soc. S. Afr. 47, 47-77.
- Streckeisen, A.L., 1973. Plutonic rocks: classification and nomenclature recommended by the IUGS subcommission of the systematics of igneous rocks. Geotimes.

- 18, 26-30.
- Strydom, J.H., 1983. Geochemiese en mineralogiese verspreidingspatrone in die wandgesteentes van tindraende ertsliggame in die Zaaiplaatsmyn, Potgietersrusdistrik. M.Sc. thesis (unpubl.) Univ. of Pretoria, 137pp.
- Tauson, L.V. and Kozlov, V.D., 1973. Distribution functions and ratios of trace element concentrations as estimates of the ore-bearing potential of granites. In: Geochemical Exploration 1977, London, Inst. Mining. Metallurgy., 37-44.
- Taylor, R.G., 1979. Geology of Tin Deposits. Elsevier Scientific Publishing Company. Amsterdam. 543pp.
- Taylor, S.R., 1964. Abundance of chemical elements in the continental crust: a new table. Geochim. Cosmochim. Acta, 28, 1273-1285.
- Teuscher, E.O., 1936. Umwandlungerscheinungen an Gesteinen des Granitmassivs von Eibenstock-Neudek. Min. petrogr. Mitt., 47, 273-312.
- Thornton, C.P. and Tuttle, O.F., 1960. Chemistry of igneous rocks. I: Differentiation index. Am. J. Sci., 258, 664-684.
- Tindle, A.G. and Pearce, J.A., 1981. Petrogenetic modelling of in situ fractional crystallization in the zoned Loch Doon Pluton, Scotland. Contrib. Mineral. Petrol., 78, 196-207.
- Tischendorf, G., 1977. Geochemical and petrographic characteristics of silicic magmatic rocks associated with rare-element mineralization. Int. Geol. Cong. Prog., MAWAM, 2, 41-96. M. Stemprok, L. Burncl and G. Tischendorf (Ed.). Prague.
- Tröger, W.E., 1969. Optische Bestimmung der gesteinbildenden Minerale. Teil II. Schweizerbartsche Verlagsbuchhandlung, Stuttgart. 822pp.

- Turekian, K.K. and Wedepohl, W.H., 1961. Distribution of the elements in some major units of the earth's crust. Bull. Geol. Soc. Am., 72, 175-192.
- Tuttle, O.F., 1952. Origin of the contrasting mineralogy of extrusive and plutonic salic rocks. J. Geol., 60, 107-124.
- Tuttle, O.F. and Bowen, N.L., 1958. Origin of granite in the light of experimental studies in the system NaAlSi₃O₈-KAISi₃O₈-SiO₂-H₂O. Geol. Soc. Am. Mem., 74, 153pp.
- Twist, D., 1984. Geochemical evolution of the Rooiberg acid lavas in the Loskop Dam area, southeastern Bushveld. Inst. geol. Res. Bushveld Complex, Res. Rept. 45.
- Van de Pijpekamp, B., 1982. Petrological criteria for establishing the tin potential in granitoid complexes. 273-278. In: Metallization associated with acid magmatism (MAWAM), Evans, A.M. (Editor), Wiley.
- Van Straaten, P.A., 1980. Rand Mines report on a geochemical survey of the farms Varschwater 23JS, Tafelkop 120JS, Tussenin 21JS, Mooiplaats 121JS, Boekenhoutkloof 124JS and Welverdiend 24JS.
- Vlasov, K.A., 1966. Geochemistry of Rare Elements. Israel Progr. Sci. Transl., Jerusalem. 688pp.
- Von Gruenewaldt, G., 1966. The geology of the Bushveld Igneous Complex east of the Kruis River cobalt occurrence, north of Middelburg, Transvaal. M.Sc. thesis, Univ. Pretoria (unpubl.). 104pp.
- Von Gruenewaldt, G., 1968. The Rooiberg Felsite north of Middelburg and its relation to the Layered Sequence of the Bushveld Complex. Trans. geol. Soc. S. Afr., 71, 153-172.
- Von Gruenewaldt, G., 1971. A petrographical and mineralogical investigation of the rocks of the Bushveld Igneous

- Complex in the Tauteshoogte-Roossenekal area of the Eastern Transvaal. D.Sc. dissertation (unpubl.) Univ. of Pretoria, 228pp.
- Von Gruenewaldt, G., 1972. The origin of the roof-rocks of the Bushveld Complex between Tauteshoogte and Paardekop in the Eastern Transvaal. Trans. geol. Soc. S. Afr. 75, 121-134.
- Wagner, P.A., 1929. The platinum deposits and mines of South Africa. Oliver and Boyd, London, Edinburgh. 326pp.
- Walraven, F., 1976. Notes on the late-stage history of the western Bushveld Complex. Trans. geol. Soc. S. Afr. 79, 13-21.
- Walraven, F., Burger, A.J. and Allsopp, H.L., 1981. Summary of age determinations carried out during the period April 1979 to March 1980. Ann. Geol. Surv. S. Afr. 15.
- Walraven, F., 1982. Textural, geochemical and genetical aspects of the granophyric rocks of the Bushveld Complex. Ph.D. thesis (unpubl.) Univ. of the Witwatersrand, 251pp.
- Watson, E.B., 1979. Zircon saturation in felsic liquids: Experimental results and applications to trace element geochemistry. Contr. Mineral. Petrol. 70, 407-419.
- Wedepohl, K.H., 1969. 74-F-2, Handbook of Geochemistry, Wedepohl, K.H. (Ed.), Springer.
- White, D.E., 1940. The molybdenite deposits of the Recontre East area, Newfoundland. Econ. Geol. 35, 967-995.
- White, A.J.R. and Chappel, B.W., 1982. Granitoid types and their distribution in southeast Australia. In: Roddick J. (Ed.). Circumpacific plutonism. Geol. Soc. Am. Mem. Whitfield, J.M., Rogers, J.J.W. and Adams, J.A.S., 1959. The relationship between the petrology and the thorium and uranium contents of some granitic

rocks. Geochim. Cosmochim. Acta. 17, 248-271.

Willemse, J. and Frick, C., 1970. Stroomroof en die invloed van verskuiwings op die geomorphologie in die opvanggebied van die Steelpoortrivier in Oos-Transvaal. Trans. geol. Soc. S. Afr. 73, 159-171.

Wilson, M.R. and Akerblom, G.V., 1982. Geological setting and geochemistry of uranium-rich granites in the Proterozoic of Sweden. Min. Mag. 46, 233-245.

Wolhuter, L.E., 1954. The geology of the country surrounding Loskopdam, Transvaal. M.Sc. thesis (unpubl.). Univ. Pretoria. 66pp.

Wyllie, P.J., Huang, W.L., Stern, C.R. and Maaloe, S., 1976. GR-12A Granitic magmas: possible and impossible sources, GR-16 water contents, and crystallization sequences.

GR-460, 13 Can. J. Earth Sci. 13, 1007-1019.

Yeates, A.N., Wyatt, B.W. and Tucker, D.H., 1982. Application GR-16 of gamma-ray spectrometry to prospecting for tin GR-27 and tungsten granites, particularly within the GR-142 Lachlan Fold Belt, New South Wales. Econ. Geol. 77, GR-212 1725-1738. Magnetite-rich granophyre

GR-232 Microgranophyre of the Stevoren Granophyre

GR-43A Metafelsite

GR-52 Metafelsite